

Section 3: Hazard, Vulnerability and Risk Assessment

Bonneville County Wildland-Urban Interface

According to a study conducted by the Spatial Analysis for Conservation and Sustainability Laboratory, Forest Ecology & Management University of Wisconsin – Madison, Bonneville County Wildland/Urban Interface (WUI) is composed of both interface and intermix communities. According to NFPA Standard 3.3.28, Wildland Urban Interface is defined as “an area where improved property and wildland fuels meet at a well defined boundary.” NFPA Standard 3.3.29 defines Wildland Urban Intermix as “an area where improved property and wildland fuels meet with no clearly defined boundary.”

The expansion of the Wildland/Urban Interface (WUI) in Bonneville County in recent decades has significant implications for wildfire management and impact. The WUI creates an environment in which fire can move readily between structural and vegetation fuels. This assessment examines specific areas in Bonneville County that have been defined as part of the WUI. A map depicting Wildland/Urban Interface areas is located in Appendix 6. Additionally, an Idaho Department of Lands map is located in Appendix 6. This map depicts rankings of which communities are at risk to the effects of wildfire. The map integrates fire ignitions, fire weather, fire behavior and wildland urban data. A county vegetation map is also included in Appendix 6.

Hazards

Wildfire –Wildfire is an unplanned or unwanted natural or human-caused fire, or a prescribed fire that escapes its bounds.

Drought - Drought, a *prolonged period of dryness*, is a normal part of almost every climate and is actually defined in many different ways. Environmental impacts of drought are the result of damages to plant and animal species, wildlife habitat, and air/water quality; forest and range fires; degradation of landscape quality; and soil erosion. On May 20, 2004 a Drought Declaration was issued for Bonneville County and approved by the Governor. The drought has lasted several years affecting Bonneville County and essentially all of southeastern Idaho. Also, it has significantly exacerbated the wildfire danger on public lands and within the wildland/urban interface.

Landslide -Landslides occur when masses of rock, earth, or debris move down a slope. Sloping areas where wildfires or human modifications of the land have destroyed vegetation are particularly vulnerable to landslides during and after heavy rains. While there have not been any recent significant landslides within the wildland/urban interface area, landslides are a potential significant hazard along Highway 20 from the Palisades Dam to the Wyoming line if vegetation is removed as a result of a wildfire in this area.

Lodge Pole Pine - Areas on the east end of the Palisades Reservoir are experiencing increases in hazardous fuel loading, primarily created from an active attack of Mountain Pine Beetle (MPB). This is a naturally occurring phenomenon, brought about by lack of fire within the area for extensive periods of time.

Vulnerabilities

The following general categories were examined in detail to determine specific vulnerable areas within Bonneville County:

- Developed recreation sites
- Summer home sites
- Designated communication sites

- Municipal watersheds
- Private land with structures
- Timber areas
- Above-ground utility corridors
- High-use travel corridors
- Historic areas
- Range land
- Wildlife habitat
- Conservation Reserve Program (CRP) land

The following specific areas within the county were assessed, and have the following findings. See Appendix 7, Bonneville County Hazard Identification for additional pictures of the assessed areas. Once the areas were assessed they were placed in appropriate vulnerability zones.

Hoffman Estates/McCoy Creek Road Area – WUI Zone 1 – High Risk

There are 5 homes along the McCoy Creek Road between the Wyoming border and the entrance to the Hoffman Estates area. The homes are in the Alpine Fire Protection District; some homes are



located in Bonneville County, while others are located in Wyoming. A wildfire occurred in this area in 2002. There has been significant improvement in the development of clear, green space around the structures however, there is still significant fuel loading in the interface area. The fuel loading is a combination of beetle-killed lodge pole pine and other pines killed by the previous fire. There currently are some fuel removal activities occurring along McCoy Creek Road. A



court decision will be necessary to determine the status of McCoy Creek Road as a Forest Service or County Road.

The Hoffman Estates Summer home area is located on leased Forest Service land, and is a gated community. There are significant hazards in this area. There is a total lack of planning for defensible space. Also, the roads are extremely narrow. Fire apparatus would have difficulty responding to most of the properties. There are no water supplies for fire suppression. Most home sites have only one way in and out. It would very difficult to warn and evacuate this subdivision. The area has mixed construction – trailers, cabins, and custom homes.

Lodge Pole Lane Area – WUI Zone 2 – High Risk



There are a number of summer homes on the north side of Highway 20 between the Wyoming line and Indian Creek Road that are extremely vulnerable. The area has a significant concentration of dead and dying lodge pole pine as well as heavy fuel loading from light brush and grasses. Most of the home's entrances are gated, and the entrance roads are steep and poorly maintained. This area is in the Alpine Fire District boundary.

Sheep Creek/Salisbury Estates Summer Home Area – WUI Zone 3 – High Risk



There are significant hazards in this area. There is a total lack of planning for defensible space. Also, the roads are narrow and steep. Fire apparatus would have difficulty responding to most of the properties. There are no water supplies for fire suppression. Most home sites have only one way in and out. It would very difficult to warn and evacuate this subdivision. The area has mixed construction – trailers, cabins, and custom homes. Homes located at the top of the mountain were inaccessible due to locked gates.

Bills Road Summer Home Area – WUI Zone 3 – High Risk

There are significant hazards in this area. There is a total lack of planning for defensible space; the roads are narrow and steep. Fire apparatus would have difficulty responding to most of the properties. There are no water supplies for fire suppression. Most home sites have only one-way in and out. It would very difficult to warn and evacuate this subdivision. The area has mixed construction – trailers, cabins, and custom homes. The fuel loading is dense with plenty of fine fuels including seasonal grasses and brush. Quaking aspen and conifers are also present.



Lakeview Drive Summer Home Area – WUI Zone 3 – High Risk

There are approximately 30 homes in this subdivision. Most have metal roofs. No defensible space planning is apparent. There is a significant amount of fuels present including fine brush and seasonal



grasses. Quaking aspen and conifer trees are interspersed throughout. The road is fairly wide and well maintained. The area is passable for some equipment such as small fire apparatus. However, the grade is greater than ten percent. There are no water supplies for fire suppression. Most home sites have only one way in and out. It would very difficult to warn and evacuate this subdivision. The area has mixed construction – trailers, cabins, and custom homes. According to the Bonneville County Assessor, the value of the property in this area is in excess of \$1,900,000. This property is located outside of a fire protection district.

Calamity and Palisades Summer Home Area – WUI Zone 4 – High Risk

There are significant numbers of homes in these two subdivisions. This subdivision is located on the southwest end of the Palisades Reservoir. The area is easily accessible, however, because the entrances to the subdivisions are gated, a detailed analysis was not conducted. There is a dense canopy, and according to the hazard analysis conducted by the Swan Valley Fire District, little if any defensible space around the structures.



Falls Creek Road/Snake River Road – WUI Zone 5 – High Risk



There are 16 homes on the south side of the river. The Swan Valley Fire District reports that it would take approximately 45 minutes to respond to the south side of the river from Irwin. There are 7 homes in a little community that all seem to have instituted defensible space programs with plenty of green space surrounding them. The remaining homes do not have sufficient defensible space. According to the Bonneville County Assessor, the value of the homes on the south side of the river is in excess of \$1,600,000.

Little Lemhi Scout Camp – WUI Zone 5 – High Risk

The Boy Scouts of America operate a Scout Camp on the south side of the Snake River below Palisades Dam. The area has heavy fuel loading, including fine brush, seasonal grasses, quaking aspen and pine groves. During the summer months there are between 120 and 350 youth and leaders in the camp. The Camp does not have a fire protection system but does train the scouts and leaders on fire prevention techniques. The camp has a warning and evacuation plan and provides the information to all campers.



Ta-Man-A-Wis Scout Camp – WUI Zone 5 – High Risk

The Ta-Man-A-Wis Girl Scout Camp is located on Long Gulch Road in Zone 5. The area has dense fuel loading with fine brush, seasonal grasses, quaking aspen and conifer groves located throughout the property. There is a lack of defensible space around buildings. Safety areas and an evacuation plan need to be developed.

Kelly Island Recreation Area – WUI Zone 6 – Medium Risk

This area is part of riparian zone along the south side of the Snake River above Heise. There is significant fuel loading in the area including Cottonwoods and Poplar Trees, Sage, Juniper, and other light brush and grasses. The area is used primarily as a camping area; there are no significant structures in the area. However, it would be difficult to evacuate if a fast-moving fire occurred in the riparian zone.



Bone Area – WUI Zone 7 – Medium Risk

The Bone area, located on the east mountain benches of Bonneville County, has a mixture of fire hazards. This includes an abundance of CRP land intermixed with private dry-farm land. Most homes are built in pockets of quaking aspen. There is heavy fire loading in the remote reaches of the Willow Creek Canyon. Fires starting in the Canyon would be difficult to respond to and would move quickly to CRP grounds bordering the canyon. There is no fire protection in the Bone area.

Ririe Reservoir – WUI Zone 7 – Medium Risk

Thick juniper canopy surrounding the campground presents a possible hazard. If a fire were to occur in the junipers it would require the immediate evacuation of the campground. There is only one other home past the campground – it appears to have sufficient defensible space. There is no established fire protection in this area.



West End of Bonneville County – WUI Zone 8 – Medium Risk

The west end of Bonneville County has a mixture of agriculture and high desert lands. A large portion of the land is covered with an ancient lava flow. The extreme end of the county covers a small portion of the Idaho National Engineering and Environmental Laboratory. There have been frequent wildfires at the gun range located adjacent to Highway 20.



Antelope Flats –Not Determined to be Vulnerable

In the Antelope Flats area, along Highway 26, there are some farm homes located at the edge of the farmland and quaking aspen groves. These homes are surrounded by quaking aspen trees, which have been deemed a “natural firebreak.” Of some concern, is the area of concentrated conifers coming up out of the south fork canyon onto farmland. If a fire were to occur in the riparian zone along the river, the fire could move quickly upslope into private farmlands.

Pine Creek – Not Determined to be Vulnerable

There are no homes or structures beyond the Pine Creek Bridge up to Forest Service property along Highway 31. The main property in this area is the Pine Creek Ranch. The ranch has incorporated defensible space around their structures.

Palisades Creek Homes – Not Determined to be Vulnerable

There are numerous homes along this route (approximately twenty or more). Many are located within the riparian zone that borders National Forest property. There are dense, small fuels such as grasses and brush. Cottonwoods are the primary vegetation type. No defensible space planning is apparent. The road provides easy accessibility. There are some new homes on the west side of the road. These homes are located within fairly open areas consisting mainly of grasses and sage.

Birch Creek Road – Not Determined to be Vulnerable

There are approximately 8 homes along the Birch Creek Road. A mixture of farmland, CRP land, and forested lands surrounds the homes. There is no defensible space planning in the area.

Grays Lake/Wayan – Not Determined to be Vulnerable

The Wayan and Grays Lake areas are located in the eastern reaches of Bonneville County. Fire protection, provided by Caribou County, is limited. No defensible space planning is apparent in the area.

Swan Valley Fire District

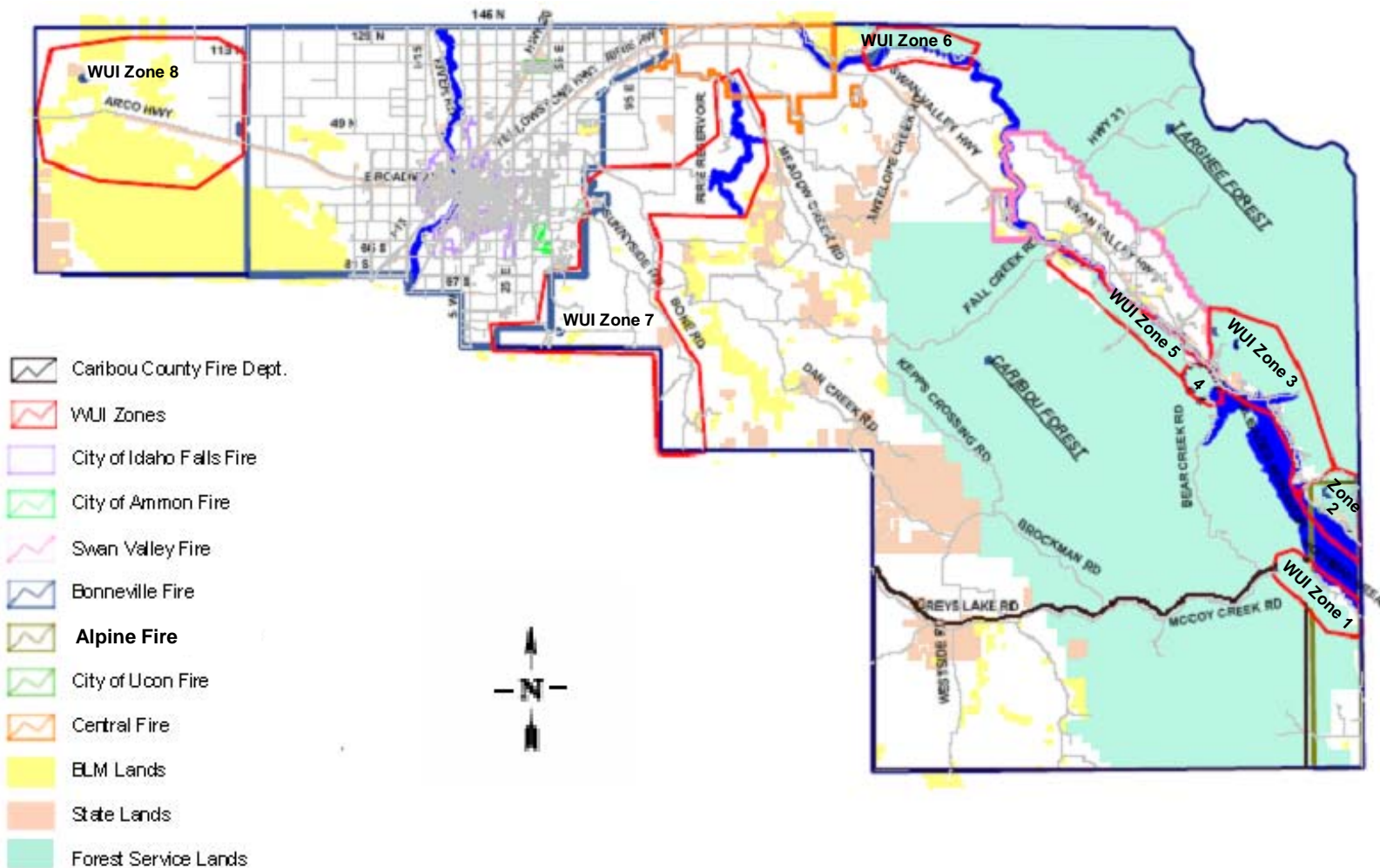
Swan Valley Fire District personnel conducted a hazard survey in early mid May 2004 of the summer home areas covered by the district. Pictures taken during the assessment are included in Appendix 7. The following issues were identified:

- ❑ Unprotected areas in the county outside of the district.
- ❑ Forty-five minute response times to the south side of the Snake River.
- ❑ Lack of public education with summer home residents.
- ❑ Need for mechanical treatment and the requisite funding.
- ❑ Absentee vacation homeowners.
- ❑ Need for secondary evacuation routes from summer homes and subdivisions.
- ❑ Need for water storage and supply in the Swan Valley area.
- ❑ Need for requirements for protection on leased forestlands.
- ❑ Burn permits; refuse collection, removal, and disposal.
- ❑ Lack of pre-fire planning in rural areas of the county such as the following subdivisions:
 - Sheep Creek
 - McCoy Creek

- Palisades
- Calamity
- Bear Creek
- Need for increased Forest Service Cooperation on issues facing private homeowners.

Risk Assessment

For the purpose of quantifying the risk in each of the areas examined, wildland/urban interface zones have been developed. See the map below. An expanded view of the map is located in Appendix 6.



WUI Zone 1 – Hoffman Estates/McCoy Creek Road Area – High Risk

- ✓ Dead Lodge Pole Pine
- ✓ Heavy Fuel Loading in Hoffman Estates
- ✓ No static water supply
- ✓ No defensible space in Hoffman Estates
- ✓ One way in and out
- ✓ No evacuation planning

WUI Zone 2—North side of Palisades Reservoir from Wyoming Line to Indian Creek – High Risk

- ✓ Dead Lodge Pole Pine
- ✓ Dense light fuels
- ✓ No defensible space
- ✓ Inaccessible roadways
- ✓ No static water supply
- ✓ One way in and out
- ✓ No evacuation planning

WUI Zone 3 – North side of Palisades Reservoir from Indian Creek Road to Swan Valley Fire District Boundary – High Risk

- ✓ Dense light fuels
- ✓ No defensible space
- ✓ Inaccessible roadways
- ✓ No static water supply
- ✓ No established fire protection district
- ✓ One way in and out
- ✓ No evacuation planning

WUI Zone 4 – South West side of Palisades Reservoir including Calamity and Palisades Summer Home Areas – High Risk

- ✓ Heavy fuel loading
- ✓ No defensible space
- ✓ No static water supply
- ✓ No established fire protection
- ✓ No evacuation planning

WUI Zone 5 – South side of Snake River from the Palisades Dam to Fall Creek Road including the Little Lemhi Scout Camp and Ta-Man-A-Wis Scout Camp – High Risk

- ✓ Heavy Fuel Loading
- ✓ Very little defensible space
- ✓ Static water supply difficult to reach
- ✓ Long response time
- ✓ No evacuation planning

WUI Zone 6 – Kelly Island riparian area between the north side of the Snake River and the Heise Road – Medium Risk

- ✓ Extreme fuel loading
- ✓ No defensible space
- ✓ No established fire protection
- ✓ No evacuation planning – extremely difficult to evacuate

WUI Zone 7 – The CRP intermix on the east bench of the county west of Bone Road between Ririe Reservoir and the southern County boundary – Medium Risk

- ✓ Significant CRP intermix
- ✓ No established fire protection

WUI Zone 8 – The west end of the county from the west boundary of the City of Idaho Falls to the INEEL boundary – Medium Risk

- ✓ Significant light fuel loading
- ✓ No established fire protection

Risk Ranking

Table 1 is the evaluation of risk probability versus consequence for each of the WUI Zones identified above. The table compares the identified hazard with the potential threat to life, property, and the environment. The ranking criteria are presented in Table 2.

Table 1 Ranking

Risk Analysis				
Identified Hazards	Life Safety	Property Damage	Environmental Damage	Economic Impact
WUI Zone 1	High	High	High	Low
WUI Zone 2	High	High	High	Low
WUI Zone 3	High	High	High	Low
WUI Zone 4	High	High	High	Low
WUI Zone 5	High	High	High	Low
WUI Zone 6	High	Low	Medium	Low
WUI Zone 7	Medium	Medium	Medium	Medium
WUI Zone 8	Medium	Medium	Medium	Medium

Table 2 Criteria

Consequence Criteria		
Life Safety	Low	Injuries limited to the area of effect. < 10
	Medium	Serious injuries >10
	High	Multiple fatalities, critical and serious injuries
Property Damage	Low	Minimal damages
	Medium	Structural damages evident
	High	Loss of structure
Environmental Damages	Low	Minimal impact at area of effect
	Medium	Regional damage
	High	Long-term recovery. Requires significant after action
Economic Impact	Low	Economic impact minimal
	Medium	Loss of business
	High	Regional long-term loss